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Stress and Well-Being of Nurses: An Update

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Abstract: *Research on occupational stress and well-being has covered several different issues, and this article gives examples of such studies carried out by the author using samples of nurses. Early research focused on the physical working environment, and factors such as noise have been widely studied. Working hours and shift-work have received considerable attention as have countermeasures such as napping. Other research has focused on psychosocial factors such as job demands, control and support. This research has been extended to include the importance of individual differences such as personality and coping styles. Much of the early research focused on negative outcomes such as perceived stress or mental health problems. More recently positive well-being has also been investigated and predictors of outcomes such as job satisfaction, happiness and positive affect have been examined. Health-related behaviours such as nutrition are also related to well-being and the importance of such factors in nursing has also been studied. Overall, the research described here shows that the stress and well-being of nurses requires a multi-faceted approach which considers a range of predictors and outcomes.*

I. Introduction

Research on occupational stress and well-being has been conducted for over fifty years and one sector that has been frequently studied is nursing. Over time there has been a different focus of the subject matter of this research and the present article considers several relevant topics and illustrates the area with studies of nurses carried out by the author. Although the emphasis on different areas of research has changed over time, it is apparent that they are still all relevant. Indeed, it is essential to look at combinations of factors because this is more relevant to the real-life working situation than a consideration of single variables. The following areas will be considered here:

- Effects of noise
- Shift-work and countermeasures
- Psychosocial job characteristics
- Demands, Resources and Individual Effects
- The Well-being Process

II. Noise and Nursing

There has been a great deal of research on the effects of noise on health and safety at work (see Smith 1989, 1990, 2010; Smith and Broadbent 1991; Maynard et al 2010 for reviews). Much of the concern has been with effects of noise on hearing and such studies have often focused on blue collar workers. However, it has been shown that levels where there is no risk to hearing can influence safety and subjective health. Smith (2017) examined the effects of noise on errors, injuries and the reported health of nurses. The survey collected information on subjective noise exposure, job characteristics (e.g. demands, control, support, working hours, and other aspects of the physical environment), demographics, and personality. Initial univariate analyses showed that those reporting more frequent noise exposure had more injuries/cognitive failures, greater stress at work, and worse general health as well as more anxiety and depression. Subsequent multi-variate logistic regressions controlled for job and personal characteristics. These analyses showed that noise still had a significant effect on injuries/errors and stress at work. However, the effects of noise on general health and mental health were no longer significant when the other factors were covaried. These results largely confirm findings from other occupational groups exposed to similar levels of noise. They also confirm results from studies investigating the benefits of “quiet time” in the healthcare environment (Riemer et al 2015).

A review of the effects of the physical working environment on nursing performance demonstrated that noise, ergonomics/furniture/equipment, lighting and design layout could contribute to errors in acute care settings (Chaudhury et al 2009). Other research has shown that noise can influence the accuracy and efficiency of nursing students performing anaesthesia simulations (Hogan 2015). There is also the issue of environmental noise impairing the sleep of nurses, with this being especially prevalent in night workers who have to try to

sleep during the day (Diamond et al 2001; Smith et al 2002). This last topic leads into the area of the effects of working hours and shiftwork.

III. Nursing, Night Work and Napping

Shift work is the norm for many nurses and research on the effects of time of day and working hours often uses samples of nurses (see Smith 1992). Much of the early research on shift work documented the problems associated with working at night or doing specific patterns of shifts. Other research has evaluated countermeasures that could help nurses cope with working at night. One area that received attention was napping and the question addressed was whether having a nap in the middle of a night shift could reduce the negative impact of the low state of alertness observed at this time. Smith and Wilson (1990) examined this issue using a sample of nurses from an intensive care unit at a London teaching hospital. These nurses worked one week of nights (21.00-08.30) in every five weeks. The study compared nurses who regularly took a nap in the middle of their shift with those who did not. Each person rated their mood and carried out a logical reasoning task at the start of the shift, 15 minutes after the end of the nap and at the end of the shift. The logical reasoning task was used because the hospital management were especially interested in the effects of naps on decision making. The results showed that taking a nap was associated with reduced alertness and impaired decision making immediately after the nap. However, those who had a nap showed a smaller decline in performance at the end of the shift. The negative short-term effect of napping reflects sleep inertia and this is observed in many studies where the person is tested shortly after waking. It has been suggested that those having a nap combine it with caffeine prior to the nap because this will then negate the effect of sleep inertia. The longer term benefit of napping is also frequently observed and shows that it is a good countermeasure for working at night or when sleep deprived.

The next section examines psychosocial stressors such as job demands, control and support.

IV. The Scale of Occupation Stress.

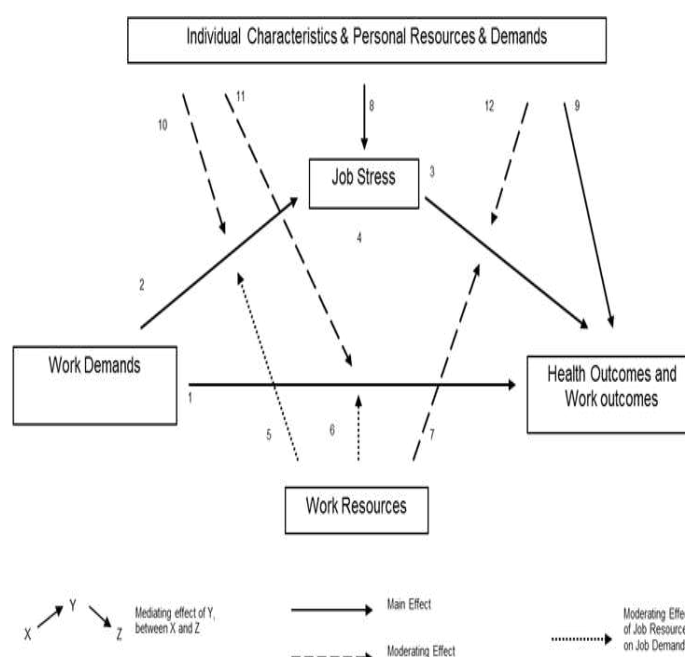
Both the physical environment and working hours are associated with reports of stress at work. However, research carried out in the 1990s suggested that the main risk factors for stress were psychosocial factors such as job demands. The incidence of occupational stress was also increasing at this time and Smith et al (2000a) found that about 1 in 5 workers reported that they were “very or extremely stressed” at work. Secondary analysis of this survey (Smith et al., 2000b) showed that 30-40% of nurses reported high levels of stress. Williams and Smith (2013) reviewed the literature and conducted secondary analyses on stress and job satisfaction in NHS nurses and other groups of workers. This study confirmed that nurses reported higher demands and higher levels of extrinsic effort than other workers, and these were associated with greater levels of perceived stress. In contrast, nurses reported lower levels of anxiety and depression than other groups of workers. This may have been due to the higher job satisfaction reported by the nurses. The high stress levels reported by nurses may also reflect the emotional labour which is not present in other occupations.

One of the other approaches developed at this time was the combined effects approach (Smith et al 2004). This research showed that the risk factors for stress at work were additive and that levels of stress linearly increased with the number of risk factors present. One advantage of this approach is that additional risk factors can easily be included. For example, McNamara (2008) showed that stress was influenced by established factors such as the physical environment, working hours, job demands and lack of control and support. She then examined interpersonal stressors and found that bullying increased the risk of high levels of stress. While most models of stress have focused on job characteristics, others have also included individual differences and the next section describes such an approach.

V. The Demands-Resources-Individual Effects (DRIVE) Model of Stress

This model is shown in Figure 1. It has many of the features of earlier models of stress but puts a greater emphasis on individual characteristics and personal resources. The basic model included factors from the Demand-Control-Support model (DCS) model, the Effort-Reward Imbalance (ERI) model, coping behaviours, and attributional styles as well as outcomes including anxiety, depression, and job satisfaction. These variables were categorised as work demands, work resources (e.g. control, support), individual differences (e.g. coping style, attributional style), and outcomes, although the model was intended as a framework into which other relevant variables could be included (Mark and Smith 2008). The simple DRIVE model proposed direct effects on outcomes by each of the other variable groups, as well as a moderating effect of individual differences and resources on demands. An enhanced DRIVE model was developed to acknowledge a subjective element and included perceived stress as well as further interactive effects. The direct effects of these variable groups on outcomes has been supported by research on nurses and university staff, although little support was found for interactions (Mark and Smith 2011, Mark and Smith 2012). Research has also shown that many of the effects of job characteristics are mediated through perceived stress (Galvin 2016; Nelson 2017).

Figure 1: The Demands-Resources-Individual Effects Model (Mark and Smith 2008)



One of the advantages of the DRIVE model is that it has been easy to add new variables (e.g. psychological contract fulfilment – Ahmad et al 2018a, 2018b; resilience, work-life balance and burnout – Omosehin and Smith 2019; attitudes to training – Zaidy Nor and Smith 2018; and ethnicity – Capasso et al 2016a, 2016b, 2018; Zurlo et al 2018). In order to measure many variables one needs to use short measuring instruments. This methodological approach became a key feature of recent studies of the “Well-being Process”.

VI. The Well-being Process

There is a substantial amount of research on negative job characteristics, occupational stress and mental health problems of nurses. However, positive and negative emotions are not just the opposite ends of a continuum, and the absence of negative emotion does not mean the presence of positive emotion. The necessity of studying positive outcomes then leads to the question of “what is a good job?” Smith et al (2011) conducted research with healthcare staff to determine what predicts positive work outcomes. Again, a combined effects approach was used and the “good job score”, which best predicted positive outcomes (e.g. good health; well-being), was the sum of positive job characteristics and appraisals and the absence of negative characteristics and appraisals.

The research described above showed that there is a need for a multi-dimensional model of well-being at work that measures a wide range of job characteristics, job attitudes, individual characteristics and outcomes. This need for many variables has been addressed by developing surveys involving short measures of a large number of concepts, and an example of this approach has been the development of the Well-being Process Questionnaire (WPQ) which has been used to investigate the well-being of nurses (Williams et al 2017). Research on the WPQ showed that single items are often highly correlated with longer scales. These findings show that it is possible to have a single question measuring perceived stress, single items measuring job characteristics, and single items measuring health outcomes. Also, possible confounding factors (e.g. personality, life outside of work) can be measured by single items. An initial study (Williams and Smith 2016; Williams et al 2017) with a sample of University staff showed significant correlations between single items and full scales (average correlation for work characteristics: 0.7; average for personality: 0.66). The predictive validity of the new items was confirmed by testing the Job Demands-Control-Support and Effort-Reward Imbalance models with full scales and single items. The following constructs remained in the well-being model:

- Negative job characteristics: Demands; Effort; Over-commitment.
- Positive job characteristics: Rewards; Control; Support; Consultation on change; Good supervisor relationship.
- Positive life circumstances: Uplifts; Flourishing; Social Support.
- Negative life circumstances: Hassles.
- Positive Personality: Optimism; Self-esteem; Self-Efficacy; Emotional Stability.
- Negative Coping: Avoidance; Self-blame; Wishful thinking.

The above findings were confirmed in a second study with a sample of nurses (Williams et al 2017). Other research has examined well-being using longitudinal methodology (Williams and Smith 2018a) and developed the use of the WPQ as a diagnostic tool (Williams and Smith 2018b). A practical tool, based on the WPQ, has also been developed to evaluate well-being at work using contact centre methods (Williams and Smith 2018c). Other research has examined the importance of health-related behaviours in the well-being of nurses, and an example of this is given in the next section.

VII. Diet and Well-being of Nurses

Chaplin and Smith (2011) conducted research to provide initial information on associations between breakfast consumption and cognitive failures and accidents in a sample of nurses. Another aim of the study was to examine associations between consumption of snacks which are often perceived as being unhealthy (chocolate, crisps and biscuits). The results showed that more frequent consumption of breakfast was associated with lower stress, fewer cognitive failures, injuries and accidents at work. In contrast, snacking on crisps, chocolate and biscuits was associated with higher stress, more cognitive failures and more injuries outside of work. Further research examining positive well-being as well as negative outcomes is now required.

VIII. Conclusions

The present article has covered several areas which are related to stress and well-being. All of these topics are relevant to nurses, and examples of studies conducted by the author and his colleagues have been presented to illustrate this point. The importance of using process models of stress and well-being has been discussed. Similarly, methodological issues, such as the use of single items to measure many concepts, have been reviewed. The importance of research on many predictors and outcomes has been evaluated and the use of a “combined effects” approach for both negative and positive aspects of well-being has been discussed. These broad approaches differ from those that focus on individual predictors and outcomes. Both types of research are required, and there is a need for future studies involving longitudinal measurement to evaluate interventions. Such research will provide a clearer picture of causal relationships and also lead to methods to prevent and manage stress and promote the well-being of nurses.

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